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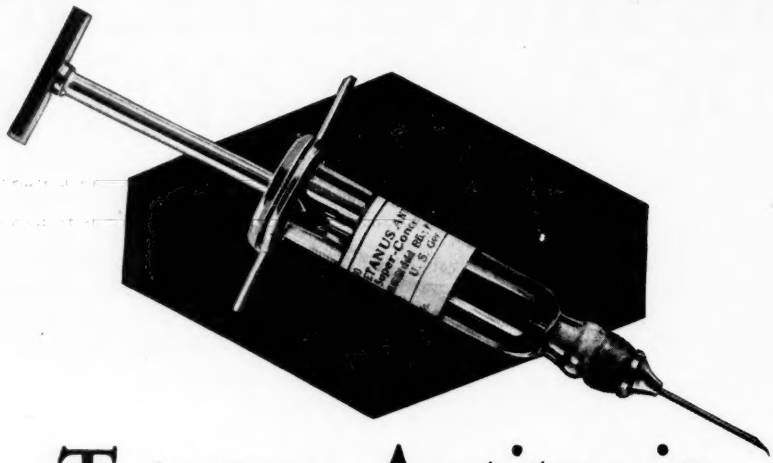

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ORIGINAL ARTICLES

ELECTRIC ENUCLEATION OF TONSILS WITH THE SURGICAL CUTTING CURRENT*

HOWARD EVERETT BLANCHARD, M.D.

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As the title of this paper implies, the operation to be described has nothing in common with the procedure of Electro-Coagulation of tonsils, whereby the tonsil is coagulated by the active electrode over a period of many weeks with many applications.

The first requisite to the successful use of the electric cutting current is of course a properly constructed, resonant, high frequency outfit delivering the current whose character produces the result desired. Its proper and gratifying use demands a knowledge of the physics involved and a technic as rigid as the most exacting surgical procedure. The perfected high frequency apparatus of today had its early foundation in the researches of Hertz (1888), followed by Pozzi, Oudin, Tesla, and the discovery of the medical high frequency current by D'Arsonval (1891).

From a broad standpoint any form of electrical current, either direct, alternating or high frequency, of proper voltage, amperage and continuity of application will give the so-called electrical cutting of tissues. Ordinary commercial current can not be used, such as the 60-cycle alternating current. If this is passed through the body, painful sensations are produced, because the frequency is so low that each reversal of current makes itself felt as a painful, violent, incomplete muscular contraction. Electro-chemical changes also take place in the tissues. D'Arsonval showed in his experiments that muscular contractions, intolerable at a wave length of 1500 to 2000 meters, diminished in proportion to the reduction in wave length. Therefore if the frequency is raised sufficiently, the only sensation felt by the subject is one of different degrees of heat.

The first requisite then for tissue cutting is a high frequency current, i.e., one whose alternations of current flow range upwards of a million per second, an extreme speed so fast it is almost impossible for the human mind to form an accurate conception of the rapidity of oscillations. At these frequencies, practically all neuro-muscular responses are eliminated.

The generation of the high frequency current by passing the 60-cycle commercial current through a step-up transformer to raise the voltage, then through a D'Arsonval air core transformer with the interposition of fixed condensers and spark gaps in the circuit, would seem to warrant its use for electric surgery. Just the fact that we have this rapidly oscillating current does not mean that it is suitable. Other factors enter into consideration, such as the relation of the number of turns of primary and secondary windings to govern the voltage and amperage and also the correct capacities of the condensers, production of frequencies and the resistance of the circuit.

While all of the currents in a modern endotherm outfit are high in frequencies, a comparatively low voltage is most desirable and the character of current generated is radically different and will produce radically different results. In general terms a high frequency current may deliver a damped, undamped, or a moderately damped wave, rather familiar terms since the advent of the radio.

An undamped wave or continuous wave is one in which the alterations or change in the direction of flow are nearly uniform and of equal amplitude flowing with a continuous application of energy, irrespective of the rate of frequency. This current has excellent cutting qualities, but the dehydration effects are practically nil and there would be no advantage over the ordinary scalpel. There would be no hemostasis and no sealing of the lymph channels.

Another form of wave is the damped wave, in which the rate and amplitude varies periodically. In the case of high damping, there are recurrent bursts of energy or electrical discharges of high

*Read before the Rhode Island Medical Society, March 5th, 1931.

intensity, short in duration, with interruption making inactive or dead periods between the wave trains. These waves are produced by the reversals of current and successive loss of energy due to the resistance of the circuit. The resistance interposed being the air gaps just before their ionization.

This current will not cut in the true sense, but when applied to the tissues the heat generated in them is sufficient to dessicate and coagulate them deeply.

Neither of the two currents mentioned being suitable for electric cutting, it was necessary to develop a new form of wave between the highly damped and the undamped, and this was accomplished by a moderate damping of the wave. In this the rate varies periodically and the peaks of the waves are pushed closer together. It provides an excellent form of current for electro cutting, giving a light dehydration to the side walls which will allow healing by first intention after suturing. This zone of dehydration depends as stated in other words, not on the voltage or power applied, but on the characteristic of the wave and the logarithmic decrement. The damping factor of an exponentionally damped alternating current is the product of the logarithmic decrement and the frenquency and the instantaneous effective values for one complete cycle must all be figured out by an electrical engineer and incorporated in an endotherm outfit in order for it to do its work efficiently.

The high frequency current is applied to the body by means of two electrodes, both of these remaining cold, while heat is generated in the tissues by their resistance to the passage of the current. This varies from a mild sensation of warmth, as in medical diathermy to coagulation, and if applied too long, charring and carbonization of tissue. The same windings in the outfit are used for either diathermy or coagulation, with the addition of a cutting coil for electro surgery. In diathermy, two electrodes, block tin, gauze mesh or special construction, of equal size or one larger than the other, are used. In electro surgery, one large indifferent electrode and a smaller one, as a needle wire loop, or a blade for the active electrode, is employed for the concentration of heat.

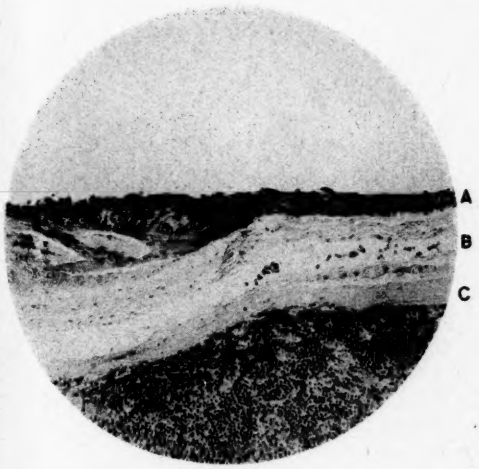
The amount of electrical heating or the density of dosage from the application of the high frequency current is in inverse ratio to the area of contact of the electrode with the patient, assuming that a good electrical contact is made. As an example an area equal to 1/10 sq. in. would develop 100 times greater heat than an area of 10 sq. in. with the same amount of current in each case. This principle is applied in electro surgery. In actual work the area of the indifferent electrode in contact with the patient is of a size which would be about 2,400 times greater than the area of the active electrode. An intense heat is generated in the tissues in contact with the latter, while in the former the degree of heating would be hardly noticeable. This relation is carried out in tonsillectomy with the snare loop, i.e., area of wire loop to the block tin electrode.

It is possible to cut tissues within limits using a small inactive plate, but the power of the apparatus will have to be increased to compensate for the loss in area and it is far better to preserve the correct relations of the areas, using less power. Contrary to what one would assume offhand, high power applied over a shorter period of time will dehydrate less than low power during a longer application even though the product of time and power are the same in both cases. The reason for this is that on low power the tissues secrete fluids which assist in making good electrical contact, thereby permitting the current to be applied longer and coagulation carried to a greater depth. On high power the action is so fast that the tissues in contact with the electrode are dried out rapidly, thereby reducing the current strength.

For these reasons the predetermination of the results with this method depends largely on the experience and judgment of the operator and can not be determined by any set rule. A milliammeter is of no value in determining the work being done and the operator must judge of this entirely by observation. Different tissues, as brain, fat, muscle, etc., have different resistances to the current.

With a setting of the controls of an apparatus as predetermined by experiment, the snare loop enucleates a tonsil in an average time of 1 and 4/5 seconds as caught by a stop watch. The fingers controlling the snare get a certain "feel" depending on the size and resistance of the pedicle that informs the operator that the cutting is taking place to a proper degree and not penetrating too deeply. In early cases operated on with the regular size tonsil wire and before looking more deeply into the action of currents, the operation appeared to be a success, but secondary bleeding occurred on the fifth or sixth day with the separation of the

slough. The wire was altogether too large and not of the right kind. From Dr. Jacob Braun, who is doing this operation in New York, I learned of a more suitable wire, one so fine that it would be impossible to cut through a tonsil pedicle without breaking, but which carries the current so well that the cutting occurs with ease. This wire is No. 35 Nichrome alloy, annealed, bright, of the proper tensile strength, and possessing the correct electrical conductivity. With this the zone of necrosis is about .5 of a millimeter in thickness and does not go through the thickness of the capsule of a tonsil.



Photomicrograph of Section of Tonsil Removed with the Cutting Current

A—Dissolution
B—Coagulation or dehydration
C—Normal capsule

REPORT OF B. EARL CLARKE, M.D.

Pathologist, Rhode Island Hospital

"Photomicrograph of section of tonsil removed with electric cutting current. All of the sections show on the surface, a zone of molecular dissolution of tissue, inside of which is a zone of coagulation. In fibrous tissue, these two layers tend to be of about the same thickness. In muscle tissue the inner zone is much the thicker. There is some variation in the thickness of the two zones in the same specimen but should judge that the combined thickness of both zones of dehydration seldom exceeds 0.5 m.m."

When the operation is properly done there should be very little surgical shock, and absolutely no hemorrhage, primary, intermediate or secondary. By any other method some bleeding will ensue, at the time of operating, with more or less oozing during the time that the patient is still unconscious and recovering from the anaesthesia. If the inhalation of blood has been controlled while operating by aspiration or sponging, it will be swallowed and drawn into the chest during the recovery period. Having absolutely dry fossae following the enucleation by electro cutting, the bleeding from the adenoid region can all be removed with the suction tube, followed by the application of a small sponge wet with adrenalin chloride to the naso pharynx. The patient will leave the operating table with a dry throat and there will be no post-operative vomiting of a considerable quantity of blood with the added danger of aspirating this as it is expelled.

Ryder states that in bronchoscopies performed by Daily, Vail and Myerson following tonsillectomies, blood was found in the tracheo-bronchial tree in varying amounts in 75% of any series. Iglauer's results from bronchoscopies on 400 patients showed aspirated blood in 40% to 78% of patients done under general anaesthesia, and 38% under local anaesthesia. Light anaesthesia and the non-abolition of the laryngeal and chest reflexes will minimize the amount of aspiration, but the air current is bound to carry some fluid into the chest.

At the Mayo Clinic, 21% of all lung abscesses followed tonsillectomy. Flick reports a series of 121 cases, 97 of which followed tonsillectomy of the total number of lung abscesses reported in the literature the largest percentage come after tonsillectomy.

Intruments and technic. The apparatus used is similar to a radio transmitter and it is possible to send code messages with it up to a distance of 100 miles. The radio frequency circuit oscillates at 1,100,000 cycles per second and it may be stated that the tonsils are removed on a frequency of 1100 kilocycles and a wave length of 273 meters.

The only change necessary from the standard snare is the substitution of the metal canula carrying the stylet and snare loop with a bakelite or vulcanite canula for its insulating properties. This slips into the carriage of the Braun Snaretome.

The operation may be performed equally well under local or general anaesthesia. With the former the dehydration takes place more rapidly as a better electrical pathway is made by the infiltration of the tissues with Ringer's solution or normal saline. Under general anaesthesia all ether containers, masks, gauze, etc., are removed to a safe distance and the operating room should be well ventilated. There is no spark in the throat and danger here is nil. More danger exists from the spark gap igniting an explosive mixture in the room, hence the free circulation of air.

The operator may wear rubber gloves if he desires but there is no real necessity for so doing if one does not complete the circuit by touching the indifferent electrode or the patient.

Ether cases are operated in the recumbent position and the indifferent electrode is wet with soap lather and placed under the back. The electrode is of block tin, size 8 by 10 inches. The arm electrode may be used where the size of the arm warrants its use.

The first experimental operations were done by the dissection method with a snare to the base. This caused bleeding during the dissection, just what we were trying to eliminate, and then the current had to be applied in a wet field. Regulation snare wire was used and was not suitable, secondary hemorrhage ensuing in five to six days with the separation of the slough. With special wire and using the Braun Snaretome technic, splendid results followed.

In this operation the tonsil is engaged in the wire threaded fenestrum, the blade of the guillotine pushed home with the thumb, keeping close to the anterior border of the tonsil to preserve the mucous membrane of the anterior pillar. The fingers of the other hand draw the snare loop tight, the blade is withdrawn and the guillotine is automatically freed. The active electrode is now snapped on to the snare, the tonsil grasped with an Allis clamp for removal from its bed. The electrical circuit is closed with a foot switch and the tonsil enucleated with the cutting current passing through the pedicle between the capsule and the pharyngeal aponeurosis in a little over a second, leaving a bloodless fossa.

The floor of the fossa is left smooth and the muscle is covered with a split pharyngeal aponeurosis, this fine areolar tissue assuming a pinkish gray appearance of light coagulation. About three-eighths of an inch in width of normal mucous membrane the whole length of the posterior pillar is left intact, its outer margin sharply defined against the gray background dipping down into the fossa.

On retraction of the anterior pillar the mucous membrane winds around the anterior pillar to the fossa making a reduplication in its whole length. This conservation and non-mutilation of the tissues assures healing of the floor only, the pillars remaining separate and anatomically distinct and of normal flexibility. The fossa remains deep instead of shallow or altogether missing and the cicatrix following healing after endothermy is soft and pliable. Any lymphoid tissue not removed at the base undergoes retrograde changes from being in contact with the active electrode and no further effort need be made to remove it.

Experience with this method in 300 cases shows it to be practical, with no untoward results and the following advantages.

No hemorrhage, either primary or secondary with the avoidance of secondary anemia.

Markedly decreased traumatism to the fauces.

The preservation of normal anatomical relations.

Absence of scar tissue.

Diminished post operative reaction with rapid healing.

The dry field after removing the first tonsil making it easier to engage the second.

The greatly reduced danger of septic infection as the lymph channels are sealed, likewise pulmonary complications from infection and the aspiration of blood.

All of these advantages make for the safety and comfort of the patient, and remove from the surgeon's mind the element of doubt as to the immediate and remote affects of the operation of tonsillectomy.

I wish to express my thanks to Dr. Meyer Saklad, who gave his time and effort to make moving pictures of the operation.

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A SUMMARY OF BIRTH INJURIES OF THE NEWBORN*

ANTHONY V. MIGLIACCIO, M.D.
PROVIDENCE, R. I.

From statistics taken from records in the Lying-In Hospital, 1926-1930

Mr. President and Members of the Providence Medical Society:

With the increase in knowledge, the better training of the general practitioner and specialist in the art of obstetrics, with the gradual disappearance of the mid-wife in the United States, and finally with the hospitalization of more and more of the normal and especially of the abnormal obstetrical cases, we have seen an almost miraculous improvement in the mortality statistics in this branch of medicine.

This change for the better must be attributed to the large amount of stimulation; which has come both from within and from without the ranks of the medical profession, to study the causes of fetal and maternal deaths.

Vital statistics placed this problem at the front door of the obstetrician and fortunately he has faced the situation squarely; the result being a marked lowering of maternal mortality and a concomitant decrease in the fetal mortality.

While the decline in fetal mortality and injury in the United States has been remarkable, it has not paralleled the improvement seen in some of the European Countries. What can be the reason for this? The one argument most commonly advanced is that there is a tendency to interfere too soon and one frequently hears our better obstetricians say that the accoucher presents himself with more difficulties and complications than nature ever intended for him.

Apropos to this existing condition it might be enlightening to review briefly some of the Birth Injuries to the child which we have encountered at the Providence Lying-In Hospital.

This short survey covers 8,328 cases, both private and ward, which have been delivered from May 1, 1926, to December 1, 1930, at our hospital. Minor injuries which were of no consequence were purposely omitted.

Let us first consider fractures.

*Read before the Providence Medical Association, March 2d, 1931.

1. Of these there were a total of 18.

a. 11 were fractures of the clavicles and all were present in cases which required operative interference.

b. Two were fractures of Both Bones of the leg. Curiously both these cases occurred in spontaneous vertex deliveries, where there was a minimal possibility of traumatizing the leg.

c. One was a fracture of the acromial process in a case delivered by version and extraction.

d. One was a separation of the upper epiphysis of tibia in a frank breech extraction.

e. Three were fractures of the skull. Two of these were delivered by forceps and one by version and extraction after high forceps proved unsuccessful. Two of the cases died.

II. *Paralysis.*

There were *27* cases complicated by paralysis.

13 were of the peripheral facial type and all resulted from forceps deliveries.

14 cases were complicated by Brachial Palsy.

7 of these were delivered by forceps, six by version and extraction or breech extraction alone; and one was a non-operative delivery. The weights of the babies in these cases varied from 7½ to 14 pounds while the average weight was approximately 9 pounds, thus showing that in the delivery of the larger babies one is as apt to encounter difficulty during the birth of the shoulders as during the birth of the head.

III. *Intracranial Hemorrhage.*

There were 91 *known* cases of intra-cranial hemorrhage. This group formed one percent of the total number of cases delivered in the hospital and was one of the commonest causes of Birth Injuries encountered, so that, it might be well worth our while to consider the type of delivery used in these cases and the relations between this injury and the mode of delivery of the patient, if any such relationship exists.

15 cases were delivered spontaneously.

2 cases were delivered by Low forceps.

15 cases were anterior positions delivered by Mid forceps.

5 cases were anterior positions delivered by High forceps.

13 cases required Manual rotation and delivery with High or Mid forceps.

15 cases were delivered by Version and extraction after forceps had been attempted and failed.

9 cases were delivered by version and extraction without previous attempt with forceps.

8 cases were delivered by Breech extraction.

6 cases were normal breech deliveries.

1 case was delivered by Caesarean Section.

In two cases the type of delivery was ascertained.

There are two facts of interest to note in this group:

First: That 50 or more than half of the 91 cases were Vertex presentations while in 38 or 41% the breech was delivered first, or in other words that this injury was almost as common in breech as in Vertex deliveries.

Second: That 15 cases or 16% of the babies that showed intra-cranial hemorrhage were cases in which there had been no operative interference of any sort. It might also be of interest to add that of this group nine were stillborn and 82 were recorded as live births. However, 94% of the babies with intra-cranial hemorrhage were dead before the mothers were discharged from the hospital.

No doubt the total number of cases with this type of Birth Injury would have been even greater had we been able to obtain more autopsies in the cases of stillborn infants some of whom were classified as having died from intra-uterine asphyxia.

IV. Among the rarer types of injury encountered were a case of intra-abdominal hemorrhage, one of a ruptured spleen and one of ruptured liver.

V. *Hemorrhagic Disease of the Newborn.*

Hemorrhagic disease of the newborn is frequently mentioned as being one of the prime etiological factors in newborn infants showing intra-cranial hemorrhage. In our series there were a total of 50 cases of hemorrhagic disease. This group formed one-half of one percent of the total number of deliveries and of these 50 cases, 40 were delivered *spontaneously,* while only 10 required operative interference.

Of the 50 cases of hemorrhagic disease only 6 showed evidence of intra-cranial hemorrhage. The seriousness of hemorrhagic disease of the newborn is emphasized by the fact that 32% of these babies died.

In closing may I mention that at the Providence Lying-In Hospital we have witnessed in the past few years a diminution of injuries not only in those patients who have been followed throughout their pregnancy at our hospital but also in those who have been referred to us as emergency cases by the local practitioner.

BIRTH INJURIES

An Orthopedic View

In a recent article published in the "Journal of Bone and Joint Surgery," McFadden of Ireland writes this terse prologue:

"A voluminous literature has gathered around this little tragedy in the midwife's art. The subject has been so well aired by the blast of criticism from all parts of the surgical world and has been so sifted that it is with some diffidence that I dare to gather up again the many faded fragments of such a well worn subject."

I have no "fragment" to add and so I have decided to limit this paper to a résumé of the orthopedic treatment in that common birth injury—obstetric brachial paralysis.

Most birth injuries are now recognized early and in the larger centres, such as Providence, they are receiving earlier and more adequate treatment than formerly. In birth injuries as in so many other orthopedic conditions, early diagnosis with prompt and efficient treatment make for a better prognosis. Many of the later deformities may be prevented by this early treatment. Consequently the necessity for close co-operation between the obstetrician, pediatrist, neurologist, and orthopedist cannot be too greatly stressed. Often the general practitioner may be of great aid in carrying out some of the treatments.

In the diagnosis and treatment of birth injuries probably the greatest confusion centres about obstetric paralysis. Until quite recently this condition was considered incurable but with present methods of treatment the prognosis has been much improved. Dr. Feinberg has already outlined the several types of brachial paralysis so I shall sketch briefly the clinical picture of the associated deformities.

In the upper brachial type the arm is held adducted and inwardly rotated at the shoulder while the forearm is extended and extremely pronated. This type is the most common of the three.

In the lower brachial type there is loss of power and function in the muscles of the hand and in the larger flexor muscles of the forearm. Sometimes there is also paralysis of the extensor muscles of the hand and fingers.

In the combined upper-and-lower-arm type we see a grouping of the clinical deformities of the types just described. When damage to the plexus is more or less complete, loss of power and func-

tion in the arm and forearm will be severe and result in the "dangle arm."

Under appropriate treatment the upper brachial type offers the most favorable prognosis, then comes the lower brachial type, and lastly the combined paralysis. Associated bone injuries and secondary contractures make the prognosis more unfavorable in all types. The prognosis depends also upon the time elapsing before treatment is begun, upon the electrical reactions of degeneration and upon the length of time the paralysis has continued without apparent improvement.

Treatment depends upon the type of the paralysis and upon the degree of the original injury. In most cases the injury to the plexus is not severe and if treated early will tend to recover under conservative methods.

In the upper brachial type, the arm should be put in a splint immediately to prevent stretching of the paralyzed muscles and to prevent contractures of the unopposed muscles. This splint may be made of light wire and webbing and is so fashioned that it can be fixed comfortably to the trunk. It holds the arm abducted to a right angle, outwardly rotated 90 degrees, with the forearm in supination and the elbow in flexion at an angle of about 90 degrees. This splint is worn for about four months, being removed daily for massage of the affected muscles followed by active and passive exercises to prevent contractures. Sometimes electrical stimulation is added to the treatment. This method of treatment is continued as long as it produces manifest improvement. If after a four month period of treatment with splint, muscle re-education and massage there is no improvement in function, a plexus operation is indicated according to some of the authorities. This operation is an attempt to repair the torn nerves in the plexus. Results from this operation have been so generally discouraging however, that it now has but few devotees.

If the upper brachial type comes for treatment only after contractures have developed (i.e. after four or five years) then operative treatment is usually indicated to relieve the muscle contractures and give a better arm clinically and functionally. This operation consists usually in a division of the subcapularis tendon or of the long head of the triceps. Following the operation, active and passive manipulations are performed frequently to prevent adhesions. If the inward rotation at the shoulder is severe, a simple osteotomy may be indicated.

Conservative treatment of the lower brachial type consists of a light-weight splint to support the wrist and fingers and prevent contractures. Massage and manipulations followed later by muscle re-education constitute the program of treatment as long as improvement is evident.

The whole-arm type or combined paralysis may improve under splints, massage and electrical stimulation but the prognosis with or without operation is very poor.

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BIRTH INJURIES

A PEDIATRIC VIEW

In the brief time alloted there is hardly time for more than a mere skimming over of the more important aspects of birth injuries as would be of particular interest to the pediatrist. The problem is one of great importance and it is only by means of a spirit of complete co-operation between the obstetrician, pediatrist, and orthopedist with a thorough understanding of the various forces responsible, that we may cope with this problem satisfactorily

It is an accepted fact that approximately 50% of autopsies on newborn infants, who are stillborn or who have died within seventy-two hours after birth, reveal some sort of traumatic intracranial lesion. It is also a noteworthy fact that of this group a surprisingly large number are so-called spontaneous, normal labors.

There are very few situations which call for more tact, more patience, more co-operation on the part of the physician and parent than the results of cerebral accidents. The symptoms of cerebral hemorrhage vary greatly and according to location and extent of involvement. A massive hemorrhage will probably result in still-birth or death within a few days. The slowly developing type, due probably to a slight oozing from ruptured vessels may present early sumptoms, such as refusal to nurse, high pitched cry, or difficulty in getting the infant to cry, temperature elevation, and general listlessness. As the condition progresses, the symptoms become more pronounced. There may be twitchings and general convulsions. If the immediate

effects of bleeding are overcome, the stormy symptoms subside, and there follows a chronic state of physical and mental inferiority. As time goes on we are presented with serious neurological and orthopedic problems.

A very few may not show any later effects. Some authorities claim that they have never seen an infant with a definite cerebral hemorrhage develop to an adult age without symptoms of some sort. Most of these youngsters however will have a spastic paraplegia or diplegia. The so-called classical Little's disease in which there is a spastic paraplegia of the lower and upper extremities, the spasticity of which is more pronounced than the paralysis, is usually the result of cerebral hemorrhage.

Here there is often a history of difficult labor, followed by cyanosis and convulsions. Many cases however, give a normal birth history. The child develops very slowly. He sits up late, is very slow in walking and talking. In severer cases they have the so called "scissors gait," which may prevent standing or walking alone. In milder cases, perhaps the only symptom will be an awkwardness in the use of the hand and turning in of the toes, with a tendency to drag the foot. Convulsions and disturbances in mentality usually are closely associated.

From the mental view-point the child may be either and idiot or an imbecile or may present only a slight mental retardation. The symptoms depend on the extent of the bleeding and on the facility with which the blood may be absorbed.

Injuries of the vertebral column are decidedly uncommon and probably never occur in the spontaneous delivery. When death does not occur immediately, the clinical picture is characterized by the paraplegia of both of the lower extremities, and later paralysis of bladder and rectum. The prognosis is hopeless.

Of the peripheral paralyses, facial paralysis, generally unilateral, is frenquently met with. Even this type is seen occasionally following spontaneous deliveries, although they are generally seen following forceps extractions.

Of course we may find a facial paralysis of central rather than peripheral origin. This form is decidedly less common. Here, only the lower half of the face is involved, whereas in peripheral paralysis there is involvement of the whole face. In that of central origin, there is generally paralysis of one or more of the extremities, in addition. In the peripheral paralysis, recovery generally takes place without any special treatment within a comparatively short time.

Probably the most common of the peripheral paralyses is the so called obstetrical paralysis. This paralysis is produced by an injury to the nerves of the brachial plexes at birth and is usually of the flaccid type.

Clinically we find two well recognized types of paralysis. The more common, the Upper Arm Type, is due to injury in the fifth and sixth cervical nerves, while the Lower Arm Type, which is usually accompanied by some involvement of the upper arm also, includes injury to not only the fifth and sixth roots but also the seventh and eighth cervical roots. The clinical picture is entirely dependent upon the location and extent of the nerve lesion. Immediately following birth, the arm lies close to the side and is inwardly rotated. The abductors and external rotators are paralyzed. As a rule the arm cannot be voluntarily flexed at the elbow, but the flexion and extention of wrist and fingers is not impaired. This type is occasionally confused with fracture of the clavicle or shoulder injuries. In the lower-arm type we have the same condition prevailing, with the additional paralysis of lower arm and hand, resulting in a useless, dangling arm. Atrophy of the affected parts is seldom noted during the newborn period. Occasionally there may be an inequality of the pupils associated with the whole-arm type. The pupil on the affected side is smaller and the palpebral fissure is narrowed. This is a very important finding and of value in prognosis, in as much as it means through the injury to the cervical sympathetic nerves, definite injury has occurred to the plexus either of the lower cervical cord, the eighth cervical or first dorsal. The outlook depends entirely upon the extent and severity of the injury. A mild upper-arm type due to slight stretching or edema, responds quite well to very little treatment. The prospect for a useful arm in the lower or whole-arm types, especially in those cases where the pupils are unequal is quite bad.

Amongst other birth injuries seen by the pediatrist but generally referred immediately to the orthopedist, are fractures of the long bones and epiphyseal separations. The clavical and upper end of the humerus are the most frequent sites of injury.

Mention might also be made of rupture of muscles, most noteworthy being the sternomastoid.

Here the injury results in torticollis, which is generally the result of a hematoma in the muscle. This condition most often clears up without any special treatment. Where the torticollis is quite severe and lasting, it will require othopedic intervention.

BANICE FEINBERG, M.D.
101 Waterman Street

CASE REPORT

EMERGENCY PATIENT

Ruptured Uterus

Post mortem—stillborn baby

White, Italian, 46 years old Gravida XI residence, Providence. Admitted February 24, 1931, at 10:45 p.m. Died February 25, 1931, at 12:50 a.m. One hour and three-quarters after admission, undelivered.

Taken from Prenatal Record: Emergency patient referred by Dr. ———

Diseases: Broncho-pneumonia a year ago. No history of other diseases. No previous hospital entries. General health good.

Operations: (non-Obstetrical) none

Premature labors: none.

Labors at term: 10. First one 17 years ago. This child died at the age of 5 years.15, 13, 11, 9, 8, 6, 4 years ago. Children living and well. Stillborn 3 years ago. Normal child 2 years ago. All born at home.

History to Date: Apparently normal pregnancy. Labor pains began at 2 p.m. Feb. 24, 1931. Midwife called at 2:30. She came promptly and remained present throughout. About 7 to 8 p. m. that evening she gave the woman "a needle in left thigh." Immediately after the injection was given the patient complained of very severe pain; vision became blurred, felt "as though she was about to die." The husband was frightened and requested an L.M.D. who was called. Latter came about 10 p. m. Doctor referred the case to the Providence Lying-In Hospital as a shoulder presentation.

Patient was admitted to the hospital from the Rhode Island Hospital ambulance at 10:45 p. m. Condition was extremely poor. Pulse was hardly discernible and blood pressure was so low that it could not be taken. Patient was immediately taken to labor room where she was treated for shock i. e. Head lowered, heaters and blankets applied and 1500 cc of warm intravenous saline solution was given. Patient placed on the D.L. and a priest was summoned. Examination on admission showed an Italian woman of about 46 years lying on a table in shock. She showed marked pallor, gasping respiration, rapid weak pulse.

Patient's and husband's blood were taken, typed and cross aggultinated. Patient was type III and husband was type II. Blood was incompatible. Other relatives were sent for immediately with the aid of the police. Several attempts to obtain professional donors were unsuccessful as donors could not be located. Patient's condition in spite of supportive treatment, rapidly grew worse. Patient was still conscious.

The abdomen was distended and the abdominal wall was extremely thin. The distension seemed to be localized to the lower abdomen. Above the umbilicus there was generalized tympany with no evidence of shifting dullness, fluid wave or fetal parts. Below the umbilicus, fetal parts were palpable below and close to the skin. There was bleeding from the vagina. (The ambulance blanket was covered with blood.)

A suitable donor was obtained and patient was given 500 cc of citrated blood. Her condition seemed to show slight improvement and operation was considered. Operating room was ready and patient was transferred there. Abdomen was prepared with alcohol, ether and Scott's solution. No anesthetic was administered. Patient's condition rapidly grew worse and she ceased to breath at about 12:50 a. m. on February 25, 1931.

Immediately the abdomen was incised, (permission for post-mortem having been given by the husband who was brought into the operating room and shown that the patient had not been touched before she had ceased to breath) and it was found that there was a rupture in the lower uterine segment on the left and that blood had dissected its way in between the folds of the broad ligament. There was no free blood in the general abdominal cavity but there was considerable blood in between the folds of the broad ligament and some had dissected up under the anterior abdominal wall extra peritoneally. The fetus was presenting as a frank breech L.S.P. The feet were caught and the fetus extracted and found to have a hydrocephalus baby stillborn, female 8 lbs. The uterus was removed. Clotted blood was found about the point of rupture. The abdominal incision of about four inches extending from symphysis to umbilicus was closed. The rupture in the left lower uterine segment was about three and one-half inches long; it extended almost to the point where round ligament leaves the uterus. Body removed by undertaker.

Cause of death: 1. Ruptured uterus.

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EDITORIALS

MEETING OF THE A. M. A.

The year of 1931 will be of particular interest to doctors of the East. For the past two years the major number of medical meetings have been held in distant parts of the country—too far for New England physicians to attend.

This year the East is favored again, and in June the American Medical Association meetings will be held in Philadelphia. This city is not only easily accessible, but is also large enough to accommodate the visitors without apparent inconvenience to anyone. Most important to the success of the session, however, is the stimulating influence of a great medical center. Certainly few cities can offer more to the visiting doctors in the way of medical colleges, and great hospitals than Philadelphia.

The coming session surely promises to be as good as any ever held by the Association. Rhode Island physicians will do well to take advantage of the proximity to Philadelphia for future conventions will probably be farther away.

THE JOHN M. PETERS HOUSE

The usual donation or bequest to a hospital is made in such a way as to affect directly the patient, often with little thought for the individuals who work over him in an effort to restore him to health.

How often one sees splendid equipment for the most minute comfort of the patient, but the house staff—doctors and nurses—housed and living under inadequate, uncomfortable and often almost primitive conditions.

It is far from pleasant for an interne who works conscientiously and long hours in his hospital, always for the good of the patients, to have poor accommodations for his own rest, recreation and comfort in the short hours that he can devote to relaxation.

It is equally difficult for a visiting doctor to leave a comfortable home, often at night and in all kinds of weather, and as often missing a meal, to hurry to the bedside of the emergency patient or the poor woman in labor, and then finding every comfort for his patient but little or no provision for his own personal comfort while thus working hard and conscientiously for charity.

The splendid foresight and generosity of Mr. Metcalf and Mr. Campbell in providing the exquisite new quarters for the visiting and resident staff of the Rhode Island Hospital is a splendid gesture of friendliness to the sometimes forgotten medical man whose skill, after all, is the vital element in the care of the sick. It is another evidence of the largeness of mind, generosity of soul, and "golden rule consciousness" of the donors. And best of all, what more gracious blessing and dedication to the building than to compliment the entire staff by giving it a most revered name—The John M. Peters House.

We cannot forget how fortunate we are to have such friends and such altruistic fellow citizens. God bless them!

RHODE ISLAND HOSPITAL CLINICAL-PATHOLOGIC CONFERENCE

MARCH 10, 1931

CASE PRESENTED BY DR. LUCIUS C. KINGMAN

Abstract of Clinical History

B. A. Admitted February 18, 1931. Age 74. White.

Previous Admission. November 2, 1925, with complaint of difficulty in swallowing for 35 years. The difficulty in swallowing would come on at irregular intervals, vomiting frequently during these attacks. During the last two to three months the attacks have been more severe than before, and the vomiting more marked, vomitus containing food eaten on the previous day. After swallowing food patient would have the sensation of a lump beneath the upper part of the sternum.

X-ray, November 2, 1925. "Greater masses of barium stopped at a level approximately five inches above the cardia. In the films made there seems to be a great dilatation of the oesophagus. There is a large filling defect in the lower portion, probably representing food."

Operation, November 7, 1925. Three-inch upper left rectus incision. Catheter size of twenty inserted into stomach. Held in with two rows of sutures. Stomach sutured to peritoneum with two stitches.

December 2, 1925. Began taking fluid by mouth in small amounts. X-ray on the 17th essentially the same as on previous examination.

Discharged on the 20th of December, 1925, with a diagnosis of oesaphageal stricture.

C. C. Epigastric pain.

P. I. Patient says that he fell during the latter part of December striking his chest, injuring the lower part of the chest, anteriorly. Since this time he has had more or less constant pain in the epigastric area, and other vague pains throughout the abdomen. Pain tends to radiate to the right chest and right kidney area. The pain is not particularly severe, but is described as a constant ache. Pain does not appear to be related to meals. No vomiting apart from occasional regurgitation of food which patient has had over a period of several years.

P. H. See previous admission.

Head. Normal in size and shape. Ears, eyes, nose and throat: Negative.

C. R. Patient has noticed shortness of breath for the past few months with slight swelling of the ankles. No palpitation, headaches or dizziness.

G. I. Since last admission patient has been troubled considerably, and somewhat more of late, with difficulty in swallowing. Has had to drink large amounts of water in order to force food down and with occasional regurgitation. Appetite good until Christmas; since then poor. Constipated for

five years, takes frequent physics with soft small movements. Has noticed some swelling of the abdomen during the last few days.

G. U. Negative, apart from frequency. Passing frequent, small amounts of urine.

Nutrition. Weight 140. Patient says he has lost weight during the past six months but does not know how much.

Physical Examination

Fairly well nourished, poorly developed white male appears about stated age, lying quietly in no acute distress. Patient answers questions sluggishly and gives poor account of illness. Temperature 97, pulse 84, respirations 20.

Head. Negative. Eyes: Pupils equal, regular, react to light and accommodation. Ears, nose and throat: Not remarkable.

Neck. No enlarged glands or other palpable tumors.

Lungs. Moderate dullness, finely scattered moderately coarse, moist rales in both bases, otherwise examination of lungs negative.

Heart. Borders not made out accurately but appear enlarged to the left. There is a soft blowing systolic murmer at the apex, not transmitted, pulse full and regular. No thrills or irregularities. Vessels sclerotic. Blood pressure 148/100.

Abdomen. Moderately distended with definite signs of free fluid—fluid wave and shifting dullness. Liver and spleen not palpable. There is moderate tenderness in the epigastrium and in the umbilical area. No spasm or rigidity.

Extremities. There is moderate oedema of lower extremities.

Reflexes. Active and equal.

February 17, 1931. Temperature, pulse and respiration remained normal throughout the day. Bl. chemistry and Wasserman taken. EKG and X-ray of chest. Patient appeared unchanged during the morning but during the afternoon began to complain of abdominal pain and discomfort. S.S.E. given with poor fecal results. Abdomen remained about the same as on admission except that it appeared to be more distended causing some respiratory distress. Moved to special room and paracentesis done, removing 90 ounces of fluid from abdominal cavity after which patient appeared to be somewhat relieved. Fluid was slightly turbid and from light to dark brown in color. After removal of fluid, unable to palpate any abdominal mass.

February 18, 1931. Patient's condition grew steadily worse; became moribund during the night, continued to grow weaker and died at 1:20 P. M.

X-ray, February 16, 1931. Examination of the chest shows increased density in the lower right chest which merges with the heart shadow. The estimation of the heart size cannot be given. Would like further history.

Electrocardiogram, February 17, 1931. The record is essentially normal. Rate 94.

Laboratory Date. Urine: Color light amber, reaction acid. Specific gravity 1009. Sugar negative. Albumen negative. Slight amount sediment. Blood Chemistry: Ures N. 23 mg. Crestinine 1.5 mg. Sugar 83. mg. Wasserman: Negative.

Abdominal Fluid. Smear: Shows few gram positive cocci in chains. Culture: pneumococcus gram positive, spore bearing bacilli and gram negative bacilli (B. Coli.).

DR. KINGMAN: "This case, I think, is of considerable interest for several reasons. I saw this man within a very short time of his entering the ward. His previous history we did not get until after we had seen him. We did know that he had been operated on in 1925. At that time, that was all the back history that we knew. He came in and was reported to be complaining of pain in the abdomen. As we saw him he was lying in bed rather stuperous. He did answer direct questions. That is about all. As I recall it he looked badly. He was slow motioned. The most striking thing was that he had a distended abdomen. It was evidently distended with fluid. His heart sounds were so weak that we could hardly hear them. We had difficulty in getting his blood pressure. When we first got it, it was distinctly less than the 148/100 recorded in this abstract. He had a little edema of the legs. We thought the medical men could handle heart conditions better than we. We tapped him and got about 80-100 oz. of fluid. The only thing about it was that it looked like syrup. He went rapidly downhill and died within forty-eight hours of admission. In the meantime we took up the previous admission.

"Dr. Ferguson did a gastroenterostomy for a long standing trouble in the esophagus. There seemed to be a great dilatation of the esophagus. His operation was very successful. He was able apparently to get along until he came in this second

time. We got part of the history from his friend and part from him. He fell in December and hit his chest, injuring the lower part of the chest, anteriorly. Since this time he has had more or less constant pain in the epigastric area, and other vague pains throughout the abdomen. The pain tends to radiate to the right chest and the right kidney area. The pain is not particularly severe but is described as a constant ache. Pain does not appear to be related to meals. There was no vomiting apart from occasional regurgitation of food which patient has had over a period of several years. We could get no other history from him. What further we could do in the examination was not much. He gave the appearance that it did not make much difference what we were going to do for him. He was too sick.

"Laboratory data gave us no help at all. We did not get the positive culture until after he was dead. It came down to a man with a history of dilated esophagus who was almost moribund when admitted. Our attempt to diagnose this was coronary block of the heart and autopsy will show how near we came. I thought he had a cardiac decompensation. He had a lot of coarse rales all over the chest."

Discussion

Question: DR. TEFT: "Was this man a farmer? Did he live in Natick?"

Answer: "Yes."

DR. TEFT: "The reason why I asked is that this man came to me in 1925 complaining of difficulty in swallowing. For thirty-five years patient had this difficulty. He would have to drink a lot of water to wash his food down. He frequently had vomiting with these attacks and it was noted sometimes that the vomitus would consist of food eaten days previously. The patient would have the sensation of a lump beneath the upper end of the sternum. He was greatly in the habit of drinking alcohol. This man came to the hospital and Dr. Ferguson operated. The operation was successful. After that time I lost track of him."

Demonstration of Postmortem Findings

DR. CLARKE: "This man before he died, was a sort of walking pathology museum.

"I have several things to point out. It does not make much difference where we start. We will start with the stomach.

"When we opened the abdomen, the stomach was adherent to the abdominal wall. The gastroenterostomy apparently left no scar on the gastric mucosa. It does not seem that right here it is a little smoother than elsewhere. It healed up and all that is left is these adhesions to the abdominal wall. Here you can see the esophagus. It shrunk in fixing. It was at least two times this large. It measures 15 c.m. in circumference. It lay to the right of the vertebral column. It had affected the spine. It is elongated and measures 31 c.m. in length. In it, at the time of postmortem, was a rather large piece of hard carrot. That was done in the bottom and there was softer material above. We opened the esophagus and examined it carefully all the way through. There is no tumor. Here we have the cardiac opening. It is small but there is no tumor. No scar tissue and apparently no thickening of the musculature. It is definitely thickened higher up. All one can say about it is that it is elongated and dilated. The more common explanation of such a condition is the so-called idiopathic dilatation or cardio spasm which is explained on the basis of an interference with the nervous control of the sphincter at the cardiac orifice. Congenital defect is to be thought of."

Question: "Was there any stricture of the esophagus where it comes through the diaphragm?"

Answer: "No. We have a portion of the diaphragm here. You can see where the esophagus passes through the diaphragm. We go down on into the stomach. It is all right. We go on into the duodenum and at this point there is a duodenal ulcer which has perforated. The peritoneal cavity was filled with a fibrinous fluid. The man died of peritonitis.

"Next the kidneys. This is the right. When we spread it open we find growing out from the pelvis this hard tumor tissue invading deeply into the kidney substance. When we open up the ureter we find this tumor mass within it. There were glands about this, some of rather good size. Here is the place where we cut across the renal vein. It is filled with tumor. We follow it on into the vena cava and find this mass of tumor tissue sticking out into the vena cava.

"The right adrenal gland also contained quite a large growth of tumor tissue within its medulla."

Question: "What type of tumor was it?"

Answer: "The histology is typical of epidermoid carcinoma of the kidney pelvis. The left kidney has in it this large solitary congenital cyst. Otherwise it is more or less normal.

"Scattered through the lungs are numerous small firm, greyish rather fibrous looking irregular areas. At the time of postmortem we were doubtful. We thought a chronic bronchitis might give such an appearance. It is easily explained when we see the tumor growing into the vena cava. The microscope shows tumor like that in the kidney.

"The heart is not large. The coronary vessels are in pretty good shape. There is some sclerosis. The valves, especially the mitral valve, is sclerotic. The chief point of interest is here. This probe passes through a patent foramen ovale. There is a valve-like flap which goes across it. I am of the opinion that the thing functionally was all right. This is a fairly common congenital defect which causes no disturbance of function.

"We have, then, an idiopathic dilatation of the esophagus; a perforated duodenal ulcer; generalized peritonitis; epidermoid carcinoma of the right renal pelvis with direct invasion of the tumor into the renal vein and vena cava and multiple metastasis to the lungs; metastatic tumor of the adrenal gland; a congenital cyst of the left kidney and a congenital defect of the foramen ovale."

Dr. Batchelder: "This subject of cardio spasm has been taken up in considerable detail by Dr. Mosher of Boston. He and his roentgenologist, Dr. MacMillian, are quite definitely of the opinion that it is neither of congenital or neurological origin and believe it is due to a benign obstruction which may occur and has been found, in any portion of the esophagus from the top to the bottom. When they occur in the lower end they give the picture that this patient here showed. When in the upper portion, there is not as much chance for dilatation because symptoms come on considerably earlier and they seek medical attention earlier. But these lower obstructions go on for a long time and the patient goes for a long time before seeking medical attention. With the dilatation, you get an elongation and rotation as well. Some of these cases have been due to caustics, others apparently due to scratches from pieces of bone like a pork chop fragment or chicken bone. Superficial ulceration occurs, then healing, and in the healing the mucous membrane contracts, making a puckering. In a good many of these cases alcohol has been a prominent factor of the history. I think that is the probable cause in this case."

Dr. Kingman: "I will show you the chart of that man. He finally did get a temperature of 100° just before he died. Pulse between 80 and 70. As you noticed, we blamed the only unaffected organ he had, and that was normal."

NEUROGENIC MUCOUS COLITIS*

By Russell S. Bray, M.D.
454 Angell St., Providence, R. I.

For many years clinicians have employed the term colitis as being applicable to any type of colon dysfunction. As the result of an intensive investigation and a better understanding of the complex problem of colon dysfunction a new terminology has been arranged and gastroenterologists now speak of irritable colon with its spastic and antonic phases, the redundant colon, the hypersensitive neurogenic colon associated with mucus production, the chronic ulcerative form and other types arising from determinable bacterial or parasitic etiology, the unqualified term colitis now being properly reserved for only that type of colon disease associated with some degree of local organic change. Differential diagnosis of this group is made upon the general historical data, stool examination, proctosigmoidoscopic observation and the routine barium progress meal and enema. This discussion will limit itself to but one type of a functional colon disorder, namely, neurogenic mucous colitis.

This clinical condition derives its name from one outstanding symptom, the discharge of mucus from the colon. Possibly because of the "neurotic stigma" with which it is usually associated, study of the condition has not achieved the place in gastroenterology which its prevalence would seem to justify. Most writers have been about equally divided in their opinions concerning its etiology. According to Nothnagel and the majority of neurologists, it is a secretory neurosis due to some obscure condition of the vegetative nervous system in which endocrine glandular dysfunction may also play a part. In this view there is no lesion of the colon, primarily at least. Von Noorden considers

*Read before the Amos Troup Club, at the November meeting, 1930

it an inflammation of the colon, conforming in pathology and in most of its clinical aspects to chronic hypertrophic coloproctitis. Cawadis distinguishes two conditions, namely, mucomembranous colitis and nervous spasmomyxorrhea, both having the same clinical manifestations, the spasmomyxorrhea syndrome being constituted by spasm of the colon and hypersecretion of mucus. He attributes the condition to an overstimulation of the parasympathetic centers which inervate the large bowel, and cause spasm of the muscular coat and hypersecretion of mucus by the glands. Modern investigators consider the existence of at least two factors, some degree of bowel dysfunction plus a vegetative nervous system imbalance; the exact mechanism of the mucous colitis syndrome is yet to be solved.

There seems to be nothing in the literature concerning the relation of body habitus to the mucous colitis syndrome. Clinically, the condition may be found to occur in practically every type of individual. Although the asthenic individual with congenital visceroptosis and the patient with colon redundancy seem to be more or less predisposed to mucous colitis, the condition may also be found to a fairly large extent in the constitutionally adequate individual.

I have classified the symptoms for purposes of discussion into pain, disturbance of bowel function, the passage of mucus, dyspepsia, and nervous manifestations.

Many patients suffer from attacks which might be called mucous colic; that is, abdominal pain usually of a colicy nature followed by a tendency toward diarrhoea with the passage of mucus which in most instances is followed by relief from pain. The acute attacks are sometimes accompanied by nausea and vomiting. At this time there may also be a moderate lucocytosis and a slight elevation of temperature. The acute mucus crises may simulate many of the acute surgical abdominal conditions. In many instances the pain may be relieved or modified by a bowel movement or enema, but this is not constant. The most common situation of the pain is usually in the lower abdomen on the left side. The location or character of the pain is not constant. Frequently, patients will complain of a severe "tearing, burning or gnawing sensation" over the region of the hepatic flexure and cecum. Pain may be sufficiently severe to require opiates. There are a few patients who do not complain of pain and have never suffered from a mucus crises. This fact cannot be over-emphasized as it is this group which is so frequently undiagnosed and termed "neurotics". Vague abdominal discomfort and dyspepsia is prevalent in this pain free group. The physician must rely upon the proctosigmoidoscopic examination, stool study and X-ray for a diagnosis.

Bowel function presents many interesting variations. Some patients complain of obstinate and continuous constipation, others describe alternating periods of loose frequent bowel movements and constipation of the spastic type. Bockus believes that constipation is a result, rather than a cause of the mucous colitis syndrome. Hurst attributes the spurious diarrhoea to excessive irritation due to constipation. But spurious diarrhoea may result from constipation with or without mucous colitis and therefore should not be used as an argument in favor of the inflammatory nature of this condition. I find it very difficult to distinguish between the colon dysfunction of the so-called "irritable colon" and mucous colitis. In both instances there surely is a substandard, hypersensitive, hyperirritable nervous system. Some mucus may be passed in the stools of those having an irritable bowel but they do not have the definite sequence of a mucous crises. It seems to me that the bowel dysfunction in these two conditions is simply one of degree, rather than local colon pathology, the associated parasympathetic nerve disturbance being the chief factor in producing the type of motor and secretory disturbance. This observation seems to be borne out clinically by the fact that the deranged colon may be restored to a degree of normalcy. Yet many of the constitutional symptoms persist. I believe that constipation is the easiest part of the syndrome to correct.

The discharge of so-called non-inflammatory mucus from the bowel is considered a requisite for the diagnosis. Since the passage of mucus may occur unnoticed by the patient it would be correct to include the presence of mucus in the bowel as observed through the sigmoidoscope. Mucus varies greatly in consistency and color. It may be the color of egg albumen, milky white or grayish white. The consistency varies from that of a rather thin fluid to coagulated membrane-like masses. Several types of mucus may be seen in the same bowel. As observed through the sigmoidoscope, mucus may be spread over the mucosa in a skein or as firmly

attached masses. The mucus associated with the neurogenic type of colitis is free from evidence of inflammation. Fibrin and pus cells are absent and bacteria are few in number. There are peculiar hyaline-like structures resembling degenerated phagocytic or endothelial cells containing in their protoplasm small amorphous granules which cannot be identified. The patient may notice small spots of blood in the stool following the passage of mucus shreds which have been adherent to the mucous membrane. They also complain of soreness over the bowel for a few days following an attack.

Dyspeptic symptoms are practically always encountered. By far the most common one is gaseous dyspepsia or discomfort attributed to gas; as belching, fullness, pressure beneath the heart and bloating. Nausea, pyrosis, anorexia, heartburn and so-called biliousness are often described. A few patients have been thought to have gastro-duodenal ulcer because of the ulcer-like syndrome developing from a reflex disturbance of gastric secretion and motility. Backache, headache and dizziness offer a perplexing problem for differential diagnosis. A group of symptoms suggesting vaso-motor instability are frequently encountered, namely, chilly sensations, local or general sensations of warmth or coldness, cold hands and feet, sweating, tremors, palpitation and heart consciousness, and fatigue. Fatigue is usually a common complaint. Hypotension and secondary anemia also occur.

Bockus and Bank in their clinic selected a series of tests which they thought might elucidate the relationship between vegetative nerve imbalance and mucous colitis. Only their deductions can be mentioned at this time.

In neurogenic mucous colitis there is an underlying basic instability of the vegetative nervous system, involving in most instances overactivity of both the para-sympathetics and sympathetics, the former being the more pronounced. They do not accept the terms vagotonia and sympathicotonia as indicative of definite, clear cut types of imbalance; there is usually a coexisting hyper-excitability of both systems. A so-called vagotonic state does not exclude a coexistence of sympathetic hyper-excitability. To classify the type of nervous abnormality is not easy. Various writers classify these patients as neuropaths, neurasthenics, psychasthenic or pychoneurotics. However, nervousness of some type is present in every case. These patients seem to be hypersensitive in their contact with others during the ordinary pursuits of life. Many of them are adverse to being called "nervous" and frequently tell the physician how much actual suffering they endure in silence so as not to be "jeered" at by neighbors or friends or dismissed from a physician's office with a diagnosis of "just another neurotic."

In summarizing our present conception of this syndrome, it would appear that we must consider the presence of at least two conditions, namely, some sort of vaso-motor or vegetative nervous system imbalance and altered colon function. The presence or discharge of mucus from the bowel is a constant factor. Dyspeptic symptoms are very frequently complained of and may mislead the clinician into thinking of peptic ulcer, chronic appendicitis, cholecystitis, and uterine disease. The variations of the dyspeptic complaints are many and offer an interesting field for investigation. One should make a complete diagnostic survey of the gastro-intestinal tract, as a careful differential diagnosis is certainly warranted. Although the condition may be easily diagnosed, we should never forget that organic disease may be present in the nervous, bowel-conscious patient. Gentle, generalized therapy can do a lot for these patients. The colon may be restored to a fair degree of normalcy and many of the dyspeptic symptoms relieved.

A lengthy discussion of the various therapeutic measures found helpful in relieving the symptoms of mucous colitis would not be justified in this rather brief summary of the clinical manifestations of this interesting, and at times, rather baffling, syndrome. However, no routine plan of treatment should be instituted, as individualization is desired. One should attempt psychotherapy, physiotherapy, hydrotherapy, and other measures believed to be of value in the individual case. The physician should not lose hope, as recurrence of symptoms is the usual sequence. In spite of the chronicity of this condition, much can be done to add to the patient's comfort during the period of acute distress, restoring self-confidence and equanimity during the quiescent phase.

SOCIETIES

Providence Medical Association

The regular monthly meeting of the Providence Medical Association was called to order by the President, Dr. John E. Donley, Monday evening, May 4, 1931, at 8:50 o'clock. The records of the last meeting were read and approved.

The first paper of the evening, on "Cardiology, Old and New," was read by Dr. William H. Robey, Professor of Clinical Medicine at Harvard medical School. Heart disease can be divided into two classes, early life with rheumatic fever and syphilis; late life with arterio schlerosis. He discussed the rheumatic heart with tonsilitis, chorea and joint swelling, the latter frequently absent in children. If rheumatic fever can be banished endocarditis in children will disappear. Tonsils are the chief source of focal infection. In a large series of cases he has had the tonsils removed during the acute infection and has had good results and no serious bad results.

Vascular syphilis usually develops from 15 to 20 years after the initial lesion. He warned of the dangers of overlooking this condition. He felt that clinically the heart can be well studied without the electro-cardiogram and illustrated how premature contraction can be differentiated from dropped beat, the latter showing no beat at the heart.

He showed a number of slides illustrating electrocardiograms and a series showing the blood supply of the heart in the different decades with that on the left ventricle getting less and less.

The paper was discussed by Dr. George Mathews, Dr. Streker, Dr. Robey and Dr. Messinger.

The meeting adjourned at 10:25 P. M. A large attendance was not counted. Collation was served.

Peter Pineo Chase, *Secretary.*

HOSPITALS

Providence Lying-In Hospital

The regular monthly meeting of the staff was held at the hospital Thursday, May 14th, 1931. Case reports were read and discussed by the thirty members present. It was brought to the attention of the staff that there had occurred but two maternal deaths during the past eight months. During this period over 1,600 deliveries have been accomplished and nearly 2,000 adult patients have been cared for in the wards. The two deaths occurred in emergency patients, over 200 of which class were cared for during this period.

The general meeting of the R. I. State League of Nursing Education was held at this hospital May 14, 1931, and was attended by over forty members and guests. The main paper of the evening was presented by Dr. Kiene of the State Hospital for Mental Diseases. His presentation of "Problems of Adolescent Youth" was timely and extremely interesting. Miss Helen O. Potter, Superintendent of Nurses, R. I. Hospital, presented a very lucid report of the National Convention of the League, recently held at Atlanta, Ga.

Edward S. Brackett, M.D.
Secretary

Memorial Hospital, Pawtucket, R. I.

Meeting called to order at 9:15 P. M., April 2, 1931, by the Secretary. Dr. James L. Wheaton was elected temporary chairman. Minutes of the last meeting read and approved as read.

The paper of the evening was given by Dr. Elliot A. Shaw, "Three Unusual Cases of Traumatic Rupture of the Intestines." The paper was exceedingly interesting and brought forth considerable discussion, which was participated in by Drs. C. H. Holt, Wm. P. Davis, Wm. Stoops, Isaac Gerber, H. B. Moor, R. C. Bates, Emanuel Benjamin and J. F. Kenney.

The following members were present at the meeting: Drs. Kathleen M. Barr, Philip Batchelder, R. C. Bates, Emanuel Benjamin, Lucy E. Bourn, M. A. Chapian, Wm. P. Davis, Isaac Gerber, Raymond F. Hacking, R. T. Henry, C. H. Holt, H. M. Kechijian, J. F. Kenney, H. B. Moor, Meyer Saklad, F. B. Sargent, E. A. Shaw, Stanley Sprague, Y. T. Touzjian, E. H. Trainor, J. L. Turner, A. L. VanDale, J. L. Wheaton, E. S. Wing, Wm. A. Stoops and Gordon J. McCurdy. Meeting adjourned at 10:20 P. M.

Stanley Sprague, M.D., *Secretary.*

NOTES

Louisa Paine Tingley, M.D., F.A.C.S., has been elected Councillor of the Suffolk District of the Massachusetts Medical Society for 1931 and 1932. She served as Councillor from 1920 to 1924.

MISCELLANEOUS

THYMOPHYSIN

Before the World War, American physicians were deluged with appeals to use new foreign proprietaries, particularly of the synthetic type. Since the war a much desired respite from such propaganda has been noted. Recently, however, there have been signs of recurrence; various European proprietaries—synthetic and biologic—are being offered again to our medical profession. Few are able to obtain a foothold because of the confidence of the profession in the work of the Council on Pharmacy and Chemistry; and these few are generally of promise.

One product which has been energetically advertised lately is "Thymophysin," a preparation of posterior pituitary and thymus claimed to be an oxytocic to accelerate normal delivery. In German periodicals, many articles have appeared praising the virtues of this mixture for use in the first and second stages of labor. Even in America a number of favorable but uncritical articles have been published. The authors of these contributions failed to determine the exact composition or pharmacologic activity of the products with which they were working and gave little if any thought to accurate controls. One vigorous criticism of the use of Thymophysin was made by De Lee,[1] who deplored the practice of using any drug to shorten the course of normal labor and emphasized that the effect of Thymophysin was essentially the same as that of pituitary extract. The Council on Pharmacy and Chemistry has not accepted any product containing a mixture of pituitary and thymus, as the scientific literature does not reveal satisfactorily controlled evidence that would indicate special virtues for such mixtures.

Elsewhere in this issue appears a report on Thymophysin Tenesvá by Erwin E. Nelson,[2] who, stimulated by the Council, reviewed the literature and carried out experimental investigations. This University of Michigan investigator points out that the clinical literature reveals no controlled evidence that the oxytocic or pressor activities of pituitary are altered by the addition of thymus extract. In the experimental work it appeared that Thymophysin, at least in this country, is incorrectly labeled as to its strength. The ampules examined were found to possess not over one-third and probably neither one-fourth of the activity claimed when assayed by either the pressor or the oxytocic methods. Furthermore, as might be expected from the literature on thymus, no difference could be ascertained in the pressor or oxytocic activity of pituitary extract alone as compared with pituitary plus thymus extracts. When equivalent doses of pituitary extract and Thymophysin were compared on the excised uteri or on blood pressures, a difference in action could not be demonstrated. Nelson states that the theoretical considerations leading to the clinical use of a mixture of these two substances are therefore held not to be established and it is his belief that the clinical results obtained can be explained completely as due to small doses of pituitary extract. He pointedly remarks that the glowing claims for Thymophysin are comparable to the early literature of pituitary, but with wide experience the dangers and limitations of the latter have been learned.

Notwithstanding the evident lack of carefully controlled scientific evidence, there have been those both in Germany and in the United States who have used Thymophysin and have reported enthusiastic results. This illustrates again the pitfalls awaiting those who are not thoroughly competent to undertake clinical evaluations but who arrive at conclusions based on the use of material the composition and activity of which have not first been scientifically determined. If physicians wish to undertake experimental clinical investigations with drugs, they will save time and protect the interest of the patient by limiting themselves to drugs whose chemistry and pharmacology have first been studied by the Council on Pharmacy and Chemistry.

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[1] De Lee, J. B.: Thymophysin, J. A. M. A. 94:1164 (April 12) 1930.

[2] Nelson, E. E.: Thymophysin Temesváry, this issue, p. 352.